



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/750,874

01/05/2004

Youn Jin Kim

3449-0293P

3240

2292 7590 06/08/2007
BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

DHARIA, PRABODH M

ART UNIT

PAPER NUMBER

2629

NOTIFICATION DATE

DELIVERY MODE

06/08/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/750,874

Applicant(s)

KIM ET AL.

Examiner

Prabodh M. Dharia

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2629

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Response to Amendment

2. The amendment filed 01-05-2004 does not introduce any new matter into the disclosure. The added material is supported by the original disclosure. The Specification has been amended to provide a cross-reference to the previously filed Foreign Application

3. **Status:** Please all the replies and correspondence should be addressed to examiner's new art unit 2629. Receipt is acknowledged of papers submitted on 01-05-2004 under new application, which have been placed of record in the file. Claims 1-12 are pending in this action.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida et al. (US 20010013760 A1) in view of Uchida et al. (US 5,731,657 A).

Regarding Claim 1, Uchida et al. teaches a cathode ray tube (page 5, paragraph 85, Line 1, page 1, paragraph 3, Lines 1-3, paragraph 4) comprising: a panel having a fluorescent formed on an inner surface thereof (page 1, paragraph 3, Lines 1-3); a funnel connected to the panel (page 1, paragraph 3, Lines 3-7); an electron gun housed in the funnel, emitting electron beams (page 1, paragraph 3, Lines 3-7); a deflection yoke for deflecting the electron beams in horizontal and vertical directions (page 1, paragraph 4, page 2, paragraphs 21,22); and a shadow mask for selecting colors of the electron beams (page 1, paragraph 6), wherein the electron gun is comprised of a cathode for emitting electron beams (page 1, paragraph 8), a first electrode for controlling an emission amount of the electron beams (page 1, paragraph 7), a second electrode for accelerating the electron beams (page 1, paragraph 7), at least two electrodes for forming a pre-focus lens (page 1, paragraph 7), focusing a designated amount of the electron beams (page 1, paragraphs 7,8), and at least two main lens forming electrodes for forming a main lens, focusing the electron beams onto a screen (page 1, paragraph 7,8).

However, Uchida et al. (US 20010013760 A1) fails to disclose a horizontal inside diameter (D_r) of an opening portion of one of the main lens forming electrodes and a horizontal distance (D_i) between outside end of one outer electron beam passing hole to outside end of the other outer electron beam passing hole of a correction electrode mounted with three electron beam passing holes on an inside thereof satisfy a relation of $0.97 \leq D_i/D_r \leq 1.03$.

However, Uchida et al. (US 5,731,657 A) disclose a horizontal inside diameter (D_r) of an opening portion of one of the main lens forming electrodes and a horizontal distance (D_i) between outside end of one outer electron beam passing hole to outside end of the other outer electron beam passing hole of a correction electrode mounted with three electron beam passing

Art Unit: 2629

holes on an inside thereof satisfy a relation of $0.97 \leq D_i/D_r \leq 1.03$ (please see figures 7(c), and 12 where the hole for the electron beam passage are adjusted to achieve the beams with larger current, from the figures and disclosing of Uchida et al. (US 5,731,657 A), Col. 7, Line 21 to Col. 8, Line 20, Col. 11, Lines 15-58, it is obvious to one ordinary skill in the art the a relation of $0.97 \leq D_i/D_r \leq 1.03$ is achievable).

The reason to combine a color cathode ray tube equipped with an in-line electron gun having an excellent function of limiting the electron beam moving distance after a long-time operation in a practical range by adjusting electronic beam holes passage way.

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate Uchida et al. (US 5,731,657 A) teaching in teaching of Uchida et al. (US 20010013760 A1) to be able to have a color cathode ray tube having an in-line electron gun, in which a large-diameter lens can be obtained by optimizing the diameter orthogonal to the arrangement of the three electron beams passing through an electrostatic focusing electrode constituting the main electrode of the in-line electron gun, and which can reproduce an image of high definition (Col. 8, Lines 9-16).

Further Regarding Claim 2, Uchida et al. (US 5,731,657 A) teaches a horizontal size (S_x) of the outer electron beam passing hole and a horizontal size (C_x) of a central electron beam passing hole of the correction electrode formed on at least one of the main lens forming electrodes satisfy a relation of $0.6 \leq C_x/S_x \leq 0.75$ (please see figures 7(c), and 12 where the hole for the electron beam passage are adjusted to achieve the beams with larger current, from the figures and disclosing of Uchida et al. (US 5,731,657 A), the center hole horizontal size is

Art Unit: 2629

smaller than outer hole Col. 7, Line 21 to Col. 8, Line 20, Col. 11, Lines 15-58, it is obvious to one ordinary skill in the art the a relation of $0.6 \leq Cx/Sx \leq 0.75$ is achievable).

Further regarding Claim 3, Uchida et al. (US 5,731,657 A), discloses Di/Dr of one of the main lens forming electrodes, being opposite to an electrode to which an anode voltage is applied, is greater than Di/Dr of the electrode to which the anode voltage is applied (please see figures 7(c), and 12 where the hole for the electron beam passage are adjusted to achieve the beams with larger current, from the figures and disclosing of Uchida et al. (US 5,731,657 A), Col. 7, Line 21 to Col. 8, Line 20, Col. 11, Lines 15-58, it is obvious to one ordinary skill in the art the a relation of $0.97 \leq Di/Dr \leq 1.03$ is achievable).

Further regarding Claim 4, Uchida et al. (US 5,731,657 A), discloses Cx/Sx of one of the main lens forming electrodes, being opposite to an electrode to which an anode voltage is applied, is less than Cx/Sx of the electrode to which the anode voltage is applied (please see figures 7(c), and 12 where the hole for the electron beam passage are adjusted to achieve the beams with larger current, from the figures and disclosing of Uchida et al. (US 5,731,657 A), the center hole horizontal size is smaller than outer hole Col. 7, Line 21 to Col. 8, Line 20, Col. 11, Lines 15-58, Col. 10, Lines 18-67, it is obvious to one ordinary skill in the art the a relation of $0.6 \leq Cx/Sx \leq 0.75$ is achievable). Uchida et al. (US 2001/0013760), discloses Cx/Sx of one of the main lens forming electrodes, being opposite to an electrode to which an anode voltage is applied, is less than Cx/Sx of the electrode to which the anode voltage is applied (page 4, paragraphs 79-82).

Further regarding Claim 5, Uchida et al. (US 5,731,657 A), discloses Sx of the correction electrode formed on at least one of the main lens forming electrodes is 6.8 mm and less (please see figures 7(c) and 12, Col. 11, Lines 15-58, Col. 10, Lines 18-67).

Further regarding Claim 6, Uchida et al. (US 2001/0013760), discloses a horizontal size of an electron beam passing hole on the first electrode is equal to or greater than a vertical size of the same (please see figure 3, page 10, paragraphs 148-157, where the holes sizes are very symmetrically round so even with deflection the vertical and horizontal beam size should be same).

Further regarding Claim 7, Uchida et al. (US 5,731,657 A), discloses horizontally elongated electron beam passing holes or horizontally elongated slots are formed on the second electrode (Col. 1, Line 48 to Col. 2, Line 21).

Further regarding Claim 9, Uchida et al. (US 2001/0013760), a depth (d) from an opening portion to a correction electrode of an electrode to which an anode voltage is applied is greater than a depth (d) from an opening portion to a correction electrode of an opposite electrode (page 5, paragraphs 86-91, page 9, paragraphs 135,136). Uchida et al. (US 5,731,657 A), discloses a depth (d) from an opening portion to a correction electrode of an electrode to which an anode voltage is applied is greater than a depth (d) from an opening portion to a correction electrode of

an opposite electrode (Col. 6, Lines 23-30).

Further regarding Claim 10, Uchida et al. (US 5,731,657 A), discloses an outer surface of the panel is substantially flat, and an inner surface of the panel has a designated curvature (please see figure 1, Col. 1, Lines 36-43).

Further regarding Claim 11, Uchida et al. (US 5,731,657 A), discloses a shape of a yoke mounting portion of the funnel on which the deflection yoke is mounted gradually changes from a circular shape to a non-circular shape from a neck side of the funnel to the panel side direction (please see figure 1, Item # 67)

Further regarding Claim 12, Uchida et al. (US 5,731,657 A), discloses horizontally elongated electron beam passing holes or horizontally elongated slots are formed on the second electrode (Col. 1, Line 48 to Col. 2, Line 21).

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida et al. (US 2001/0013760) in view of Uchida et al. (US 5,731,657 A), as applied to claims 1-7 and 9-12 above, and further in view of Koh (US 5,506,468).

Further regarding Claim 8, Uchida et al. (US 2001/0013760) modified by Uchida et al. (US 5,731,657 A), fails to disclose a depth (d) from an opening portion to a correction electrode of at least one of the main lens forming electrodes is in a range of 3.2-4.2 mm.

However, Koh discloses a depth (d) from an opening portion to a correction electrode of at least one of the main lens forming electrodes is in a range of 3.2-4.2 mm (Col. 9, Lines 5-19 discloses if the round opening the depth is and for square depth is 4.4, which provides ranges from 3.05- 4.4).

The reason to combine to correct astigmatism by having appropriate dimensions of passage for electron beams.

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching in teaching of Uchida et al. (US 20010013760 A1) modified by Uchida et al. (US 5,731,657 A) to be able to have a color cathode ray tube having an in-line electron gun, in which having appropriate dimension of passage for the electron beam to reduce or eliminate astigmatism (Col. 8, Lines 20-30).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Uchida; Go et al. (US 6,400,105 B2) Color cathode ray tube having electrostatic quadrupole lens exhibiting different intensities for electron beams.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M. Dharia whose telephone number is 571-272-7668.

The examiner can normally be reached on M-F 8AM to 5PM.

Art Unit: 2629

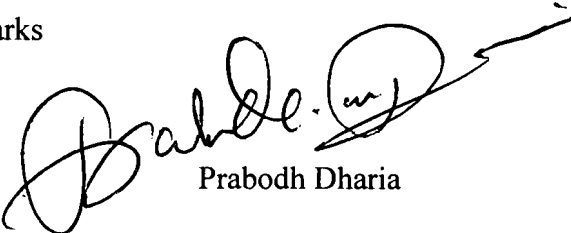
9. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231



Prabodh Dhar

Partial Signatory Authority

AU2629

May 30, 2007